AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application;

Claim 1 (Currently Amended). A communication device for communicating with a plurality of communication terminals in a multiple-access communication system, comprising:

correlation calculation means for calculating a correlation between a received signal including a plurality of signals respectively transmitted from the plurality of communication terminals using ultra-wideband (UWB) communication waveforms and local pulses at possible positions in the respective signals transmitted from each of the plurality of communication terminals;

interference canceling means for removing a multiple-access interference among the plurality of signals transmitted from the plurality of communication terminals from the calculated correlation; and

demodulation means for demodulating data transmitted from each of the plurality of communication terminals based on an output from the interference canceling means[[.]],

wherein the demodulation means demodulates data by detecting one of a suboptimum symbol and a suboptimum symbol sequence based on the calculated correlation and the multiple-access interference among the plurality of signals transmitted from the plurality of communication terminals, and the demodulation means includes

inverse correlation calculator means for making a conversion of the calculated correlation using an inverse

matrix of a correlation matrix indicating the correlation among the pulses at possible positions in the respective transmitted signals; and

detection means for detecting one of the suboptimum symbol and the suboptimum symbol sequence based on the output of the inverse correlation calculator means.

Claim 2 (Previously Presented). The communication device according to Claim 1, wherein the plurality of signals transmitted from the plurality of communication terminals are generated by modulating data by means of M-ary pulse position modulation.

Claim 3 (Previously Presented). The communication device according to Claim 1, wherein the plurality of signals transmitted from the plurality of communication terminals are generated by modulating data by means of M-ary orthogonal modulation.

Claim 4 (Previously Presented). The communication device according to Claim 1, wherein the demodulation means demodulates data by detecting one of an optimum symbol and an optimum symbol sequence based on the calculated correlation and the multiple-access interference among the plurality of signals transmitted from the plurality of communication terminals.

Claim 5 (Previously Presented). The communication device

according to Claim 4, wherein the demodulation means detects one of the optimum symbol and the optimum symbol sequence by means of maximum-likelihood estimation based on the correlation, a correlation matrix indicating the correlation among the pulses at possible positions in the respective transmitted signals, the energy of the respective transmitted signals, and the possible pulse positions.

Claims 6 - 11 (Cancelled).